

N<sup>o</sup> 7300



A.D. 1895

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COMPLETE SPECIFICATION.

A New or Improved Heating Stove or Furnace with Air Supply from Above.

I, JOHANN LIEB of Bonn on the Rhine, Germany, Director, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

5 The present invention relates to a heating stove or furnace with air supply from above which is designed to consume the smoke gases produced therein during combustion and effect a much more favourable utilization of the fuel.

The improved furnace is illustrated in the accompanying drawings in which:—

Fig. 1 is an elevation thereof.

Fig. 2 is a vertical section through the centre of the furnace, and

10 Fig. 3 is a section on the line  $x-x$  of Fig. 2.

In furnaces hitherto known the requisite air for combustion has usually been supplied to the fire from below through the grate with the result that the unburned smoke or gases and a portion of the heat have escaped through the flue provided above the fire and through the chimney.

15 Now in a furnace constructed according to the present invention the air is supplied to the fire from above and the unburnt smoke or gases are then completely burned (or more completely burned than heretofore in such stoves) in their passage through the hot grate. For the purpose of enabling the requisite air to be supplied quickly and readily to all parts of the fire towards the upper part of the  
20 stove a number of holes such as  $b$  (advantageously downwardly inclined) are provided through its inner wall  $a$ .

The grate  $c$  consists (as shown also in Fig. 3) of a number of tubes  $k$  arranged side by side through which air is constantly circulating.

The outlet pipe  $d$  arranged under the fire serves to convey away only the hot  
25 air or products of complete combustion because the generated gases have been already all burned in passing through the grate and the lower part of the furnace.

The fuel is supplied to the fire from above as usual in a closed stove or in any other suitable manner.

The heating efficiency of this furnace with proper firing or stoking is immensely  
30 higher than in an ordinary furnace of equal dimensions.

When a furnace of this kind is put in use for the first time and there is no draught in the chimney a draught may be started by opening the throttle or damper  $g$  which is provided in the pipe  $f$  in the upper part of the furnace above the fire and closing the throttle or damper  $e$  in the chimney flue  $d$ .

35 As soon as there is a sufficient draught and the fire is burning up well the damper  $g$  is closed and the damper  $e$  is opened.

In the upper part of the stove or furnace there is a provided a door which is slotted in its upper half; these slots are adapted to be closed to a greater or less extent by means of a slide or damper  $h$  so as to thereby allow of regulating the air  
40 supply.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed I declare that what I claim is:—

1. A furnace or stove to which the air necessary for combustion is supplied from  
45 above through perforations such as  $b$  substantially in the manner and for the purposes hereinbefore set forth.

[Price 8d.]

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*Lieb's New or Improved Heating Stove or Furnace with Air Supply from Above.*

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2. A furnace or stove to which the air necessary for combustion is supplied from above through perforations such as *b* and the grate *c* of which is composed of tubes *k* arranged side by side through which air is constantly circulating substantially in the manner and for the purposes hereinbefore described and illustrated in the drawings hereunto annexed. 5

3. The improved construction of stoves arranged combined and acting substantially in the manner and for the purposes hereinbefore described and illustrated in the drawings hereunto annexed.

Dated this 9th day of April 1895.

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[This Drawing is a reproduction of the Original on a reduced scale.]



